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HISTORY AND THE HALF-DEAD DISEASE

Campbell Oration 1972

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"It will be difficult for the kindliest temper to give a friendly welcome to the medical philosophy of Saxon days" (Cockayne 1864)

IT is a very great honour, especially for a Queensman, to be invited to give this lecture, and I am most grateful to the Committee of the Robert Campbell Trust for the invitation. It came to me as a complete surprise because I have never had any reason to suppose that I might be privileged to join the distinguished company of former orators. They comprise a star-studded honours list of a league unfamiliar to me, and I know only too well that I cannot bring to this occasion the academic attainment or the erudition of those who have entertained this Society since 1922 with descriptions of brilliant original work. Most of my tale concerns the deeds, sometimes the misdeeds, of other people.

Robert Campbell died ten years before I became a medical student, but his name is legendary in Ulster's medical history, and I have sometimes wondered what exceptional virtues, combined in him, urged his colleagues to endow this memorial. A colleague has been defined as a person utterly devoid of talent who in some unaccountable way is successful in doing the same job as one's own. Obviously there was no such cynicism in the minds of Robert Campbell's contemporaries, but to inspire the affection and regard underlying this Trust he must have been much more to them than just a talented teacher and pioneer of paediatric surgery. The explanation given by another member of that great family, the late W. S. Campbell, is that although he was a man of few words, he was capable of warm-hearted eloquence when he chose, and evidently he inherited the honesty, clear vision and integrity of moral purpose characteristic of his great-uncle, the first Reverend Robert Campbell. This remarkable man, known countrywide around Templepatrick as "honest Bob", was willing to defy the wrath of Henry Cooke

and even the General Synod to maintain his freedom of thought. (Campbell, 1963).

We who knew W. S. can appreciate the impact of these Campbell personal attributes, and it is appropriate on this occasion to recall Bill's own brilliant undergraduate record. A fellow student, Professor D. H. Smyth, who gave this oration six years ago, said of him that he won every prize, every medal and every scholarship the medical school had to offer from his second year onward, always with such characteristic modesty and absence of consciousness of his own great abilities that the rest of his year were content to compete amongst each other to be second to him (Smyth, 1967).

The object of this Memorial Trust was "to perpetuate the memory of the said Robert Campbell, and to advance the cause of medical and surgical science". My attempt to fulfil the second obligation is a review of the past, and the more recent, history of treatment of strokes. This will not include the progress in emergency care which has done so much to ensure survival at the onset of strokes; we are concerned here with the management of residual disability in the heavily handicapped patients who sometimes seem unlucky to have survived.

All medical progress leaves wreckage in its wake, but advances which ensure survival are not always matched by equally effective means to treat residual disability. Perhaps this is most true of the brain-damaged victims of cerebrovascular disease, and apart from its growing incidence, my reason for choosing this as the topic for the Campbell Oration is the feeling that although at least as deserving as other disability groups of all the support we can give them and their families, it seems to me that little has been forthcoming for them from professional, voluntary or other agencies in our society. The size of the problem is indicated by estimates that 130,000 people in Great Britain are significantly disabled by strokes (Harris *et al*, 1971), and new victims accrue every year at a rate just short of 2 per 1000 population. If similar proportions apply to the population of Northern Ireland we may have 3,500 disabled hemiplegics in our community, about 2,500 more strokes occur each year, and about 750 of the survivors will need a lot of help (Table I).

TABLE I

Strokes in Northern Ireland

Prevalence possibly	3,500
Incidence new victims/annum	2,500
Fate – early deaths	1,250
– continued nursing	250
– moderate disability	750
– slight disability	250

History does not relate how primitive man coped with a stroke, but descriptions of traditional forms of treatment, some sounding remarkably "modern", date from long before the Christian era. Prior to the time of Hippocrates only scattered references to the nervous system are available (McHenry, 1969), but it is clear

from the Edwin Smith Surgical Papyrus (Circa 3500 B.C.) that the ancient Egyptian may have known quite a lot about strokes. The first use of the word "brain" appears in this papyrus and there is a description of the neurological sequelae of head injury, referring particularly to aphasia, emotional instability, and the danger that residual paresis of arm and leg may cause a contracted hand "with nails in the middle of his palm", and a dropped foot. In treatment, however, the Egyptians seem to have thought more of magical rituals, amulets and exotic medicines than of physical practices, but there are references to the treatment of the paralysed in the library established in Nineveh in 650 B.C. by Assurbanipal, King of the Assyrians.

According to Dr. Edwin Clarke, Hippocrates wrote the first adequate account of apoplexy (apoplexia—"being struck with violence"). He observed that paralysis or convulsions followed brain injury and that they appeared on the opposite side of the body to the head wound, and that the loss of speech was related to paralysis of the right side. His Greek contemporaries between 500–400 B.C. appear to have shared his pessimistic view of the value of treatment expressed in the oft-repeated aphorism that "it is impossible to cure a severe attack and difficult to cure a mild one". (Clarke, 1963).

The next two or three centuries must have brought advances and enlightenment, because the treatment recommended to Greek and Roman physicians in the first century A.D. compares favourably with the better standards of care available to hemiplegic patients today. It has been described in detail by Caelius Aurelianus (Drabkin, 1950).

Not much is known about this man except that he was African by birth and owes his fame to his Latin translations of the system of medicine devised by the physicians of the Methodist School of Greek medicine. He was particularly attracted to the prolific writings of Soranus of Ephesus, a leading member of the School, who had studied in Alexandria and later practised in Rome in the reigns of Trajan and Hadrian between 98 and 138 A.D. Only two of his original treatises exist, but the Latin translations of others on acute and chronic diseases made by Aurelianus four hundred years later influenced the teaching and practice of Galen's medicine, and this in turn, was to dominate medical science for centuries in Europe.

The Methodists believed in three basic disease states:

1. An excessively dry, tense stringent state.
2. An excessivly fluid, relaxed atonic state.
3. A state involving some aspects of each.

Methodist physicians were far in advance of their predecessors (and some contemporaries) in the study of precise symptoms and in differential diagnosis, and they made clear distinctions between acute and chronic diseases.

In Caelius Aurelianus' Second Book on Chronic Diseases, paralysis is discussed at length. He notes that it is common in old age, occurs seldom in youth, and comes on most often in winter, at times for no apparent reason, at others from clear causes such as injury, indulgence or association with other conditions. The types of onset and symptoms are described in detail and then the treatment. He states that while always a serious disorder and hard to cure, prospects were

always worse if the paralysis was complete, or complicated by sensory loss, or by some other disease affecting parts essential to life, anticipating our modern concern about respiratory, cardiovascular or renal insufficiency complicating stroke. Soranus seems to have anticpated also the modern concept of transient cerebral ischaemia by his observation that paralysis is a chronic disease characterised by attacks, remissions, active phases and periods of quiescence.

Sound advice was given on general management of strokes including details of the environment the patient should be nursed in, and of food, washing, and toilet techniques (including the use of catheters). The use of medicines was precisely defined, and included small quantities of wine to reduce spasm.

The essentials of physical treatment were heat, massage and passive exercise. The paralysed limbs were warmed and relaxed by an imaginative variety of methods outlined in the following lists:

Warmth	*Baths*	*Applications*
Wax	Cold or hot	Sulphur
Pitch plasters	Sea-water or weak brine	Wild cucumber
Hot sand	Cold packs	Gum ammoniac
Sun-baths	Showers, douches, sponge baths	Squill
		Nettle seed
Charcoal fire	Vapour, hot air	Pellitory
Heated walls	Gaseous baths	Pepper
Heated pavement stones or bricks	Mud baths	White hellebore
		Black cumin
Sun-warmed hides	Turkish baths	All-heal
	Needle baths	Illyrian iris
		Lemnian earth
		Adarce

After massage with aromatic vegetable oils or with ointments composed of medicaments with real or imagined virtues, the limbs were warmed and and exercised, perhaps in the waters of a hot spring, or wrapped in a calf-skin rug by rolling on sun-warmed sand.

Paralysed fingers were softened for manipulation in wax, and weights drawn over pulleys were used to extend contractures and exercise relaxed limbs, the patient being encouraged to join in the effort himself. Instruction was given in rising from a chair, standing, and walking, making use when necessary of "a carriage which is easily moved by hand, a device of the kind often built for babies learning to walk". (Fig. 1 illustrates a medieval contraption such as this). Other walking aids were wooden handles to step over, or ditches providing variable inclines to walk into. Weights were added a few ounces at a time to the patients' shoes and the pace of walking was gradually stepped up. Bathing in the warm springs of Padua or Vesuvius, or in the sea, was assisted by inflated bladders attached to the paralysed parts to reduce the effort required in swimming.

Soranus criticised old-fashioned remedies which seemed likely to cause further injury, such as "subjecting the paralysed parts to the cutting blows of a whip", toxic fomentations, or anything "which weakens the body and is beyond our

power to control". Some treatments now outdated were recommended—cupping, leeches, and emetics, but these have only dropped out of use within the memory of senior doctors living now, and if all hemiplegics today were as well cared for as Soranus advised, there might be fewer bedfast chronic invalids left amongst them.

I have given rather a lot of time to these details because it is clear that what may be considered "modern" in our treatment of the hemiplegic today incorporates many basic principles of rest, warmth, relaxation and promotion of movement which were known and used effectively two thousand years ago by physicians whose intelligence and profound good sense laid the foundations of our best traditions of medical care.

The principles of Greek and Roman medicine spread, with other aspects of Roman culture, across Europe, but they deteriorated or were discarded with the disintegration of Roman civilization in the Dark Ages. "After the fall of the Roman Empire practically nothing of merit was contributed to medicine during the next eight hundred years" (McHenry, 1969). In Britain the decline was accelerated by the ruin of learning and education brought about by successive Viking invasions. The Danes picked out monasteries, the centres of learning, for specially destructive attention, and by the time Alfred became King in 871 knowledge of Latin had almost vanished in England, even among the clergy.

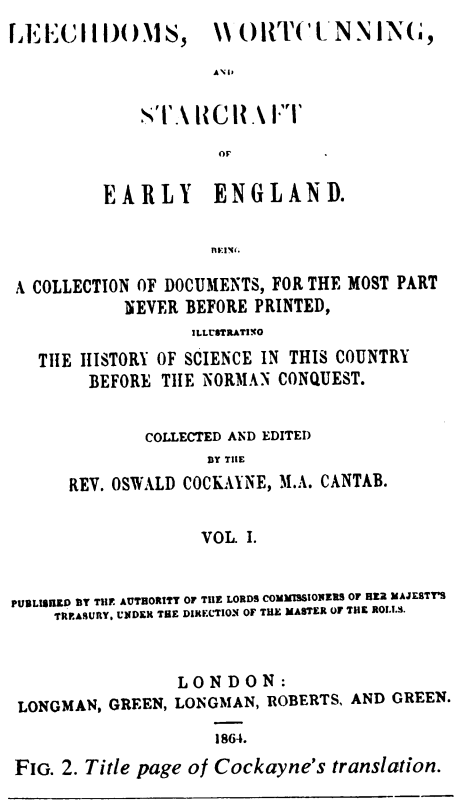
FIG. 1. *Medieval Walking Aid.*

King Alfred owes his legendary greatness not only to success in battle against the Vikings, but also to his success in the revival of education. He imported scholars to establish court schools and even made his own translations of standard works which still survive. The chronicles which grew out of his activity include three books of leechdoms, or the art of healing, written in Winchester by the monks Bald, Oxa and Dun, soon after Alfred's death in 900 A.D. These books were translated by Cockayne (1864) under the delightful title of "Leechdoms, Wortcunning and Starcraft in Early England", meaning of course, "Medical remedies, Herbals and Astrology" (Fig. 2). In the second book there is a description of the treatment of strokes in Anglo-Saxon England, a mixture of superstitious ritual and remnants of Greek and Roman medical practice.

Hemiplegia is referred to as "the half dead disease" which did not come to man before 40–50 years of age, but when it did, involved the right or left half of the body, paralysing sinews owing to the "thick viscid humour" affecting them. This had to be removed by bleeding, drinks or leechdoms. The drinks included water in which peas or beans had been boiled, or a potion called oxumelli containing

one part vinegar, two of honey, one of water, with a radish added and allowed to stand overnight. This is described as a "Southern acid drink" suggesting that it was derived from Greek medicine. The only physical treatment advised was the application of goats' droppings mixed with honey, or sodden in vinegar, to the paralysed sinews.* It is a sober thought that these scripts were written almost five hundred years after the time of Caelius Aurelianus and a thousand years after Soranus.

Compare the fate of the hemiplegic Saxon with the prospects of his Greek counterpart a millenium earlier: the one lying on a sunlit bank overlooking the Aegean, enfolded in the soft comfort of a warm calf-skin, drowsing in the fragrance of oils used to massage away his spasticity, relaxed from a hot bath, awaiting his morning stint of exercise; the other languishing in the dark damp cold of his rush-floored hovel, sickened by ineffective medication, with his useless arm and leg contracting in a case of honied goat-droppings.



LEECHDOMS, WORTCUNNING,

AND

STARCRAFT

OF

EARLY ENGLAND.

BEING

A COLLECTION OF DOCUMENTS, FOR THE MOST PART NEVER BEFORE PRINTED,

ILLUSTRATING

THE HISTORY OF SCIENCE IN THIS COUNTRY BEFORE THE NORMAN CONQUEST.

COLLECTED AND EDITED

BY THE

REV. OSWALD COCKAYNE, M.A. CANTAB.

VOL. I.

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1864.

FIG. 2. *Title page of Cockayne's translation.*

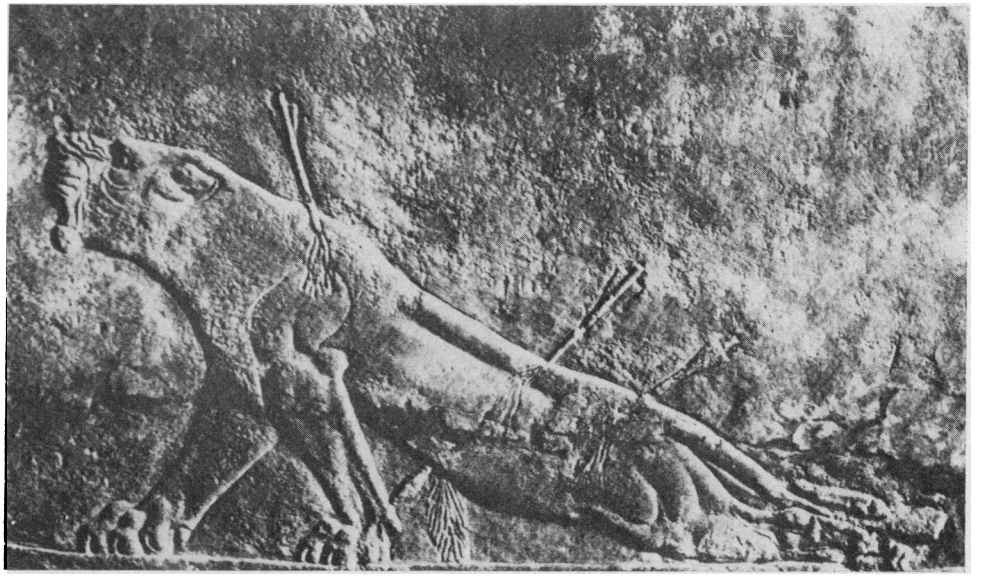
It is a pity that no illustration of this contrast is available but for some reason artists down the ages have neglected hemiplegia, although attracted to many other striking presentations of illness.

Paralysis is illustrated in ancient art in various forms. For example, there is a well-known Egyptian stele believed to portray a limb shortened and wasted owing to poliomyelitis (Fig. 3), and in a frieze at Assurbanipal's palace there is a lioness paraplegic from spinal cord injury (Fig. 4). Appreciation of facial paralysis appears in masks designed for magical rituals by native communities from different parts of the world (Fig. 5). Medieval woodcuts show many varieties of the halt, the lame and the blind. There is a well-known group of amputees, "Les Estropies" painted by Pieter Breughel about 1550 (Fig. 6), and a cripple described as hemiplegic from a French woodcut by Callot (Fig. 7) (although ability to use a crutch in the hemiplegic hand casts doubt on the diagnosis). In the famous

*(This is in keeping with the treatment the manuscript recommended for foreign bodies in the eye—"If anything to cause annoyance get into a man's eye, with 5 fingers of the same side as the eye run the eye over and fumble at it saying 3 times TETUNE RESONCO BREGAN GRESSO—and spit thrice!")

FIG. 3. (*left*)—*Egyptian stele believed to portray a victim of poliomyelitis.*

FIG. 4. (*below*) — *The dying lioness from the Palace of Assurbanipal.*



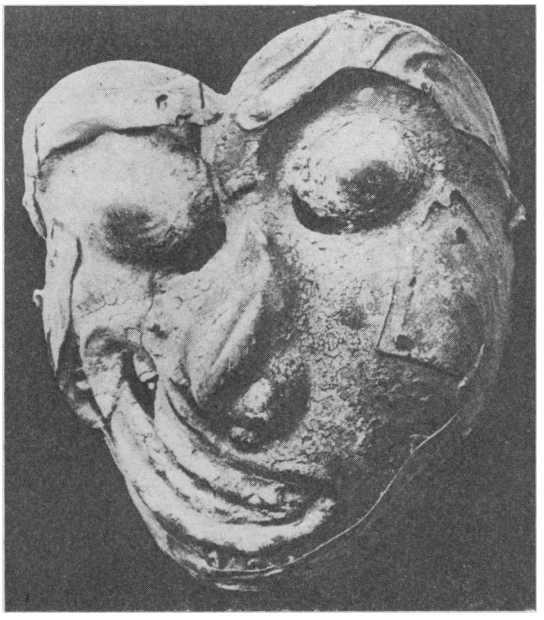


FIG. 5. *Native mask used in magic ritual.*

FIG. 7.
"Un Infirme"
by the French artist Jean Callot.

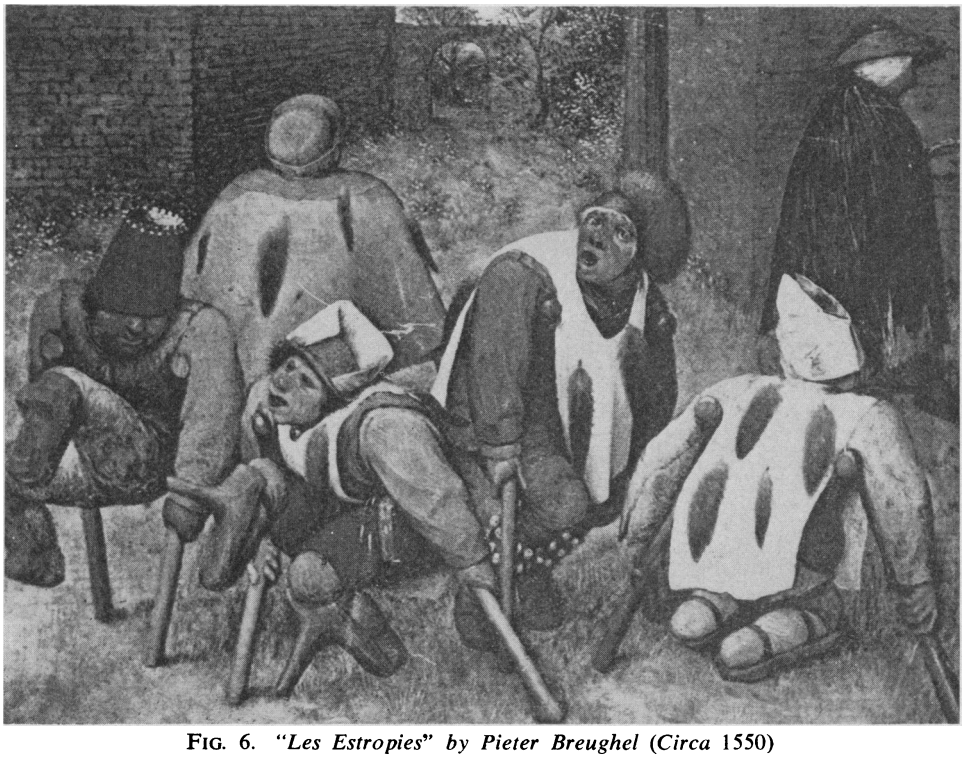


FIG. 6. *"Les Estropies" by Pieter Breughel (Circa* 1550)

Kruppleprozession by Hieronymus Bosch (Fig. 8) not more than three of the illustrations appear possibly to represent strokes, only a small and uncertain proportion of the thirty-two beautifully etched little figures, complete with clearly depicted walking and crawling aids.

It is strange that deformity resulting from such a commonplace disorder as a stroke has not attracted more attention from artists and sculptors down the ages, but Dr. Clarke (1971) suggests that the deficiency may be more apparent than real. Owing to weathering and other causes of destruction, only a fraction of ancient art remains, and of this only the more striking and unusual fragments have been recorded in photographic collections. In one of these (Fig. 9—Von Hollander, 1912) there is a photograph of three 17th century figures from the Boboli gardens in Florence which are described as clowns. It seems to me that the postures of the two figures on either side resemble the characteristics of residual hemiplegic paralysis (Fig. 10), and perhaps they represent the nearest approach there is to statutes of strokes. I do not know of any illustrations of treatment unless one can include a woodcut of Les bains de Plombières dated 1553 (Fig. 11) illustrating the famous baths surrounded by cripples crowding to them from neighbouring hotels in search of "the cure".

In spite of this lack of artistic evidence, progress was being made in medieval times at least towards a better understanding of strokes. Thirteenth century surgeon-anatomists were interested in neurological investigation and Willliam of Saliceto suggested that voluntary action was controlled by the brain, and involuntary movements by the cerebellum (McHenry, 1969). However, in spite of much diligent neuro-anatomical study including brilliant artistic work by da Vinci and by Kalkar, who illustrated Vesalius' dissections, the Rennaissance added little or nothing to knowledge of the physiology of the nervous system.

Clinical neurology, at least in relation to the origin and presentation of strokes, might be said to have begun in the seventeenth century with Willis who wrote one of the earliest textbooks on nervous diseases and coined the word neurology. He was not, as many believe, the first to describe the circle of collateral vessels by which he is so well known. McHenry gives credit for this to Fallopius (1561) but Willis, and his contemporary Wepfer (1658) were first to explain the clinical importance of the Circle. Willis described two patients whose escape from apoplexy in spite of cartoid and vertebral artery occlusions he attributed to the efficiency of this anastomotic circle at the base of the brain. Another advance made at this time (and attributed by McHenry to Mistichelli, a professor of medicine at Pisa) was the description of the decussation of the pyramids to explain why hemiplegic paralysis occurred on the opposite side to the cerebral lesion. Mistichelli seems to have been a more distinguished neuroanatomist than therapist; apparently the treatment he recommended for paralysis included a hot cautery applied to the sole of the foot.

The treatment of strokes during the Renaissance at best was probably a Galencial interpretation of the principles described earlier, at worst a hangover of medieval or even earlier rituals and superstition. However, even then there were those whose views were remarkably advanced, even by our early twentieth century standards.

FIG. 8.

Kruppleprozession by Hieronymus Bosch

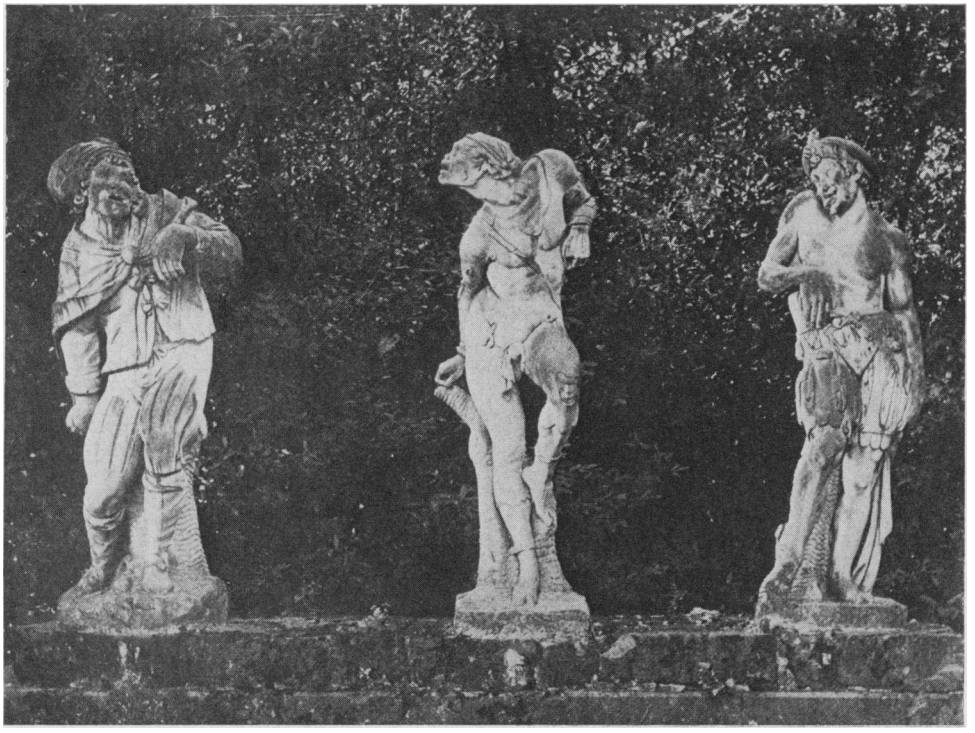


FIG. 9. (*above*)—*Statues described as three clowns from Boboli Gardens, Florence.*

FIG. 10. (*left*)—*Postural disorder in residual hemiplegic paralysis.*

FIG. 11. *The famous baths of Plombières* (*Circa* 1553).

The eighteenth century brought electrotherapy, a highlight perhaps in the history of treatment of hemiplegia, not because of its efficacy, because it had little or none, but because of the excitement and argument that raged around it. A pioneer in its use as a form of medical treatment was Krotzenstein who, around 1747, was Professor of Physic at Halle and later in Copenhagen. He is described as a resourceful and brilliant scientist, but there were those who regarded him as a vulgar pushing fellow with a sharp tongue which is said to have "procured him more enemies than his ability procured him professorships".

A contemporary of Krotzenstein was Richard Lovett, a lay clerk of Worcester, who gave an account of the uses of electrical treatment which, he claimed, would seldom fail to cure rigidities or wasting of the muscles, and had cured one case of hemiplegia in his care. He has been described as an old man (though only aged 58) pottering about Worcester administering electric shocks where he thought they

would be useful. Others who were applying them in much the same empirical way in those days were John Wesley and Benjamin Franklin.

Franklin was much less optimistic about the value of treatment by electricity than others at that time, and commented that although patients with paralysis seemed to improve at first he "never saw amendment after the fifth day". He attributed the benefit his patients derived to the exercise of coming to his house, and the spirit given by hope of success. Imaginative paintings from a French treatise on hemiplegia of those days indicate the fanciful concept of electrotherapy prevalent in the eighteenth century.

By 1765 a critic wrote that although it was the fashion in all Europe eighteen years earlier to "electrise" all paralytic patients, medical fashions, like others, go out of use and this was no exception having only lasted nine or ten years. But, like other fashions, it was showing signs of a return and, indeed, towards the end of the eighteenth century it did become a popular attribute of the quacks, notably James Graham (circa 1780).

Graham "the Emperor of Quacks" studied medicine in Edinburgh but did not qualify. He probably picked up some knowledge of electricity from Franklin while he was studying eye and ear surgery in Philadelphia. He returned to England and is supposed to have spent thousands of pounds installing electrical apparatus and a Magnetic Throne in the Great Apollo Apartment of his Temple of Health at Adelphi House in London. In another room he had a Celestial Bed which, at a price, assured the occupants that "children of the most perfect beauty could be begotten". Apparently he solicited as one of his assistants Emma Lyon, the celebrated Lady Hamilton, who is said to have been exhibited as Goddess of Beauty and to have acted as a nude model for his lectures on health.

At the beginning of the 19th century little had been added to existing knowledge of the treatment of strokes and much that was recommended was still biased by ritual nonsense. In a treatise on Pathological and Practical Researches on Diseases of the Brain and Spinal Cord in 1828, John Abercrombie, an Edinburgh physician, referred to recoveries induced by tickling the paralysed parts with a feather, or by stinging with nettles, commenting that Celsus had employed the same practices. However, much of the rest of his advice was essentially sound, and his outlook was optimistic concluding that "in general we can employ nothing better than much dry friction and particularly persevering exercise of the limbs themselves, as soon as they have recovered the slightest degree of motion which shall make them capable of it".

Electricity became fashionable again as predicted, and the first physician in charge of a hospital electrical department in England was Dr. Golding Bird of Guy's. His lectures, published as a book in 1847, were a well-informed advance in electrotherapy, but perhaps the most distinguished exponent of electrophysiology at this time was Duchenne, who applied faradic stimulation to the study of muscle responses in health and disease, and published his pioneer work in electro-diagnosis and electrotherapy (De l'electrisation localisée) in 1855.

About this time another physician, Julius Althaus, was becoming interested electrotherapy. A German by birth, he studied medicine in Gottingen, Heidelberg and Berlin, where he graduated in 1855. His postgraduate interest seems to have been attracted to nervous diseases and he evidently studied with Romberg in Berlin and in Paris with Charcot, before emigrating to London. Here he continued to pursue his neurological work and was attracted to the possibilities of electrotherapy while working with Dr. Todd in King's College Hospital. In 1866 he founded a hospital for epilepsy and paralysis in Regent's Park which was the forerunner of the present Maida Vale Hospital, which retains a bust of its founder (Fig. 12). Evidently neither his work nor his book were well-received by the "establishment". His obituary states that "he held somewhat extreme views as to the value of electricity in the treatment of diseases of the nervous system, views which have not altogether been justified by experience". He was a Member of the Royal College of Physicians for many years but was never elected a Fellow. However, ten years after his treatise on electrotherapy he published a textbook on nervous diseases which reads extremely well and nowhere better than in his description of hemiplegia, (Althaus, 1877).

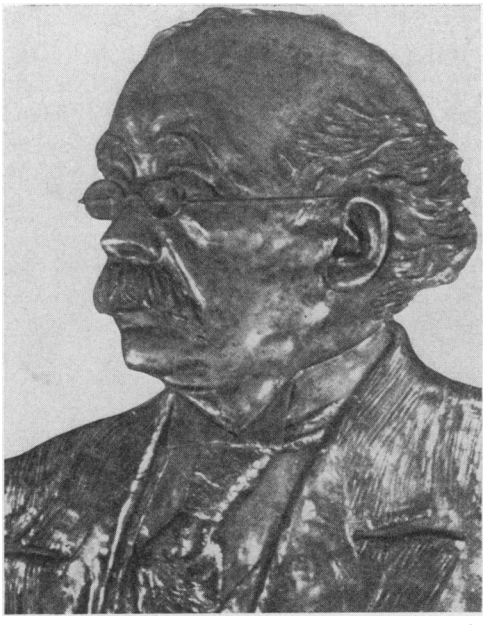


FIG. 12. *The bust of Julius Althaus from Maida Vale Hospital.*

Althaus clearly appreciated the burden imposed by cerebrovascular disease on society, and quoted statistics from America and from England to support his belief that "apoplexy must be ranked with the most important diseases we are called upon to treat in practice". He laid particular stress on the added disability imposed by sensory deficit in hemiplegia: "A limb which has been deprived of tactile sensation becomes really inanimate, although there may be no motor paralysis. It may still be moved, but only under the guidance of the eye; and as soon as this is withdrawn, the condition of limb for the time being drops out of consciousness". Even in textbooks today loss of sensory awareness is seldom high-lighted so well as a handicap to the management of hemiplegia. Evidently Althaus was alive to the advanced views of the physiologists whose researches were then founding an understanding of integration in the nervous system. He was familiar too with the miliary aneurysms described by Virchow and recognised by Charcot and Bouchard as a cause of cerebral haemorrhage. They dropped into the shadows of pathology of the nervous system for a century until brought into prominence again recently.

There has always been conflict of opinion about the value of treatment and the prognosis of strokes. Some were optimistic and encouraging, as was the description written by John Smith in King Solomon's Portraiture of Old Age in 1666, the year of the Great Fire of London. He distinguished between apoplexies which progressed to coma and death, and those which degenerated into a "Palsie which might not immediately kill and "of which there might possibly be a removal, at least for a season, that there might some space be given him to recover a little strength, before he go home and be no more seen". Physicians were always forthcoming to support this view and carry on a tradition of hopeful and expectant treatment. Early enthusiasts were Kirkland (1792) and Copland (1850), but a defeatist note is evident in the writings of the great Charcot (1881) who taught that if not followed by speedily fatal symptoms, in "the immense majority of cases (the patient) only retains life at the expense of deplorable infirmities most frequently rendering him incapable, and even condemning him to perpetual confinement to bed". Charcot seems to have been influenced by the high proportion of hemiplegics he found amongst the inmates of la Salpetrière—200 of the 1,000 chronic invalids there.

In contrast to this were the more optimistic and encouraging views expressed by various physicians in our own country before and during Charcot's time. Perhaps the best of these is in Gowers' textbook of neurology (1888) in which he gave a description of the different presentations and the management of strokes which was probably better than anything previously written about them. Some of his aphorisms should be known to everyone concerned with hemiplegic patients.

> "The tendency to improvement, by cerebral compensation, and by spontaneous disappearance of indirect symptoms, is very marked and makes it difficult to estimate the actual influence of treatment that is employed; at the same time it renders these cases a tempting field for the assumptions of the quasi-therapeautist".
>
> ". . . friends of the patient, if not the patient himself, should be made aware of the hopelessness of a search after a cure on the one hand, and, on the other, of the slow improvement that time will bring".
>
> "In few diseases does more harm result indirectly from the mistaken kindness which conceals unpleasant truths".
>
> "A contracted dropped foot can be more readily prevented than cured".
>
> "Practice should not be continued long enough to fatigue the brain, but should be repeated several times a day".
>
> "Great patience and perseverance are required, but these will be rewarded by progress far more rapid than is possible if the patient is left alone".

Gowers recommended rest for two weeks in slight strokes, and four to six weeks if more severe, employing gentle rubbing to lessen rigidity and athetoid spasm. He observed that little could be expected from electricity and it should not be applied at all in the first six weeks. He believed that hand splints should be applied for a few hours daily following relaxation obtained by immersion in

warm water, and made use of a hollow rubber ball which could be inflated to *extend* the fingers and encourage use of the hemiplegic hand. He emphasized the importance of perseverance with speech re-education because recovery is to be thought of in terms of months rather than weeks.

So we come to twentieth century treatment of hemiplegia. In the first half of the century cerebrovascular disease attracted little attention compared with the striking advances which were giving such dramatic and successful results in the treatment of many other medical and surgical conditions. Clinicians were concerned with aetiology and differential diagnosis of strokes, and one was given careful teaching in these, but in the thirties as student, houseman, and later as registrar in the Royal Victoria Hospital, I cannot remember ever having impressed on me the insight or the scope of common-sense practical ideas which Gowers evidently brought to the management of residual disability fifty years earlier. Most textbooks dismissed it in a brief paragraph, perhaps with some reference to passive movements and frictions, but there was a lack of well-informed opinion on prognosis. This probably reflected changing hospital practice, whereby the hope of long-term recovery for many of the more severely disabled hemiplegics was often lost in the early weeks when they were cast out as "chronic sick". Indeed, because of this, much of the progress made in the treatment of hemiplegia in recent years is a by-product of geriatric medicine. Most strokes occur in old people, and modern geriatric practice began from experience in the "chronic" wards of the old infirmaries where the proportions of hemiplegics were high.

Progress in the treatment of strokes recently has advanced along two lines—better understanding of the *physical* and of the *mental* disabilities of patients with strokes.

Much credit for revived interest in the treatment of hemiplegic physical handicaps is due to the late Dr. Majory Warren of the West Middlesex Hospital (Fig. 13) who gave an address to this Society in 1949. Her contribution was that, even within the stringent economy and repressive conditions of a municipal institution during the ninenteen thirties, her clear vision, practical good sense and ability to make the best use of what came to hand, enabled her to anticipate the more sophisticated methods used today to restore control of posture, of balance, and of moving equipoise to hemiplegic patients.

Dr. Warren added another dimension to hemiplegic care by recognising the physician's responsibility for every aspect of their need—insistence on proper clothing, down to socks and shoes, in days before "dressing practice" was heard of; on a thorough study of environmental handicaps—lights, steps, taps, latches, and proper levels for shelves, long before occupational therapy was generally available in hospitals; and on detailed medical-social study, taking account of the patient's well-being, present and future, at bedside conferences on ward rounds.

Dr. Purdon Martin and the late Dr. Louis Hurwitz, both Queensmen, made distinguished contributions to the care of the brain-damaged patient by their well-known studies of postural fixation and the mechanisms of balance and postural control; physiotherapy techniques in the management of hemiplegia have improved on a foundation of better knowledge and application of basic physiological principles

FIG. 13. *The late Dr. Marjory W. Warren of the West Middlesex Hospital.*

concerned with the integrative action of the brain; but Marjory Warren's intuitive principles of hemiplegic care are not out of character in the company of these advances.

Besides this contribution from Queensmen towards the management of hemiplegic physical disability, the Belfast Medical School may also claim to have helped towards the betterment of those with mental disabilities by devising a pattern of assessment and a practical approach to the treatment of what we have called *mental barriers* to recovery from strokes (Adams and Hurwitz, 1963). Although the importance of intellectual, as opposed to physical, impairment in delaying recovery has been recognised by physicians down the centuries, no attempt was made until quite recently to analyse the specific disorders of intellectual functions involved, or to take proper account of them in treatment. We may not have a claim to originality in this, but in sifting and correlating some of the tangled skein of knowledge about disordered mental function relating to cerebrovascular disease we have brought some order into a somewhat bewildering field of opportunity. The credit for this belongs to another of our distinguished neurologists, a former President of this Society, Dr. Sydney Allison, and this is how it happened.

As you know, Dr. Allison has an international name as an authority on organic mental states, and these present frequent problems in geriatric neurology. I am indebted to him for the help and advice he gave so willingly on many occasions on visits to our geriatric wards and I learned from him, amongst other things, to appreciate that patients seldom fail to recover from strokes owing to paralysis alone, and to look for the more obscure causes of failure. Applying this in a search for these causes in 45 hemiplegics in long-stay wards it transpired that the physical disability of paralysis combined with severe sensory loss or limited exercise tolerance, accounted for failure in only half of these patients; the others had defects caused by local brain disease resulting in handicaps which could be classified in four groups—impaired learning ability; disturbed awareness of self or space; disordered integrative action; and emotional disorders.

I was trying to analyse the results of this survey when Louis Hurwitz, returning from his years in Queen Square and the United States, came as neurologist to the Belfast City Hospital. He was fired by Dr. Allison with the same interest in the neglected problems of hemiplegia as mine, but, of course, in neurology he was so much more accomplished and better informed. With his help the list of mental barriers was extended, better defined and polished to include:

(a) *inability to learn* (clouded consciousness, asphasia, memory defects, dementia).
(b) *disturbed awareness* with attitudes towards illness disordered by separation from reality (anosognosia, neglect or denial of hemiplegic limbs, disordered spatial orientation).
(c) *disordered integrative action* (impaired postural function, apraxia, agnosia, perseveration, synkinesia).
(d) *disturbances of emotional behaviour* (emotional instability, apathy, loss of confidence, fear, unwillingness to try, catastrophic reactions, depression).

It became clear that we usually have to depend on the observations of interested attendants (nurses, therapists or relatives) to draw attention to these barriers because the patient himself seldom identifies or complains of them, and that their recognition is of practical not academic importance, being necessary so that appropriate treatment to get over or around them may begin as soon as possible.

Investigation of mental capacity in hemiplegic patients and assessment of the outlook for them—their "rehabilitation potential" have been discussed elsewhere (Hurwitz and Adams, 1972), and it seems that since we began to pay more attention to mental barriers, the recovery rate of our hemiplegic patients is at least 30 per cent better than it was.

The next step forward may be the national, or even the international, application of standard rating scales to compare the results of treatment. Ullman (1962) said that the victims of strokes present unique challenges which too often go unrecognised and therefore unheeded. Even if the arterial disease responsible for most strokes could be prevented tomorrow, so much is established already that strokes will continue to offer these challenges for many years to come. However, the future for these patients is much brighter than it has ever been. I have no doubt, for example, that before long much more will be done for the hemiplegic arm than we know how to do now, and, as always, most progress will derive from revision of old ideas.

Our contribution is only a small part of the wide-ranging activities of neurologists and psychiatrists attracted to these problems on both sides of the Atlantic. Indeed, distinguished lay contributions also have been made from, and about, famous people such as E. Hodgins (who wrote "Mr. Blandings builds his Dream House"), and Valerie Griffith, who did so much for Patricia Neal and Alan Moorehead. What was unusual here was the opportunity we had to integrate this proficiency in rehabilitation of brain-damaged patients, and the exceptionally well-united neurological, neurosurgical and neuropathological facilities available to our medical school. Once we hoped for an institute of Neurological or Cerebrovascular Diseases. Some day it will be founded, but it is sad to think that it will not enjoy the benefits of the unique contribution Louis Hurwitz would have made to its work.

In conclusion, it seems that there have always been wide variations in professional interest in patients with strokes. This is to be expected, but it is surprising that there is so little community interest in their well-being and that we have no Stroke Society active on their behalf. Multiple sclerosis, mental health, muscular dystrophy and many other conditions have busy associations promoting the welfare of patients no worse crippled, and of families no worse demoralized than those afflicted by strokes.

Failing such organized professional and community support perhaps we should just hope to avoid such disastrous disability at the end, and to live on like Bernard Darwin's Uncle Lenny "without having lost any one of his tastes, with a mind really and truly as good as new", until his last hours. As Darwin (1955) said "there could be no more serene sundown".

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